

Appl. No. : 10/810,421  
Filed : March 25, 2004

## REMARKS

In the Office Action mailed on February 21, 2006, the Examiner rejected all pending claims, Claims 1-25. In the present Amendment and Response to Office Action, Applicant has amended Claims 1, 13, 15-16, and 18-19, cancelled Claims 14, 17, and 26-42, and added Claim 43. Applicant respectfully requests entry of the amendments and full consideration of the remarks contained herein.

### Amendments to the Claims and Newly Added Claim

Applicant has amended the claims to further clarify the subject matter that Applicant regards as the invention. Independent Claim 1 has been amended to recite that the “rotatable valve element is sufficiently spaced from the valve housing to prevent direct mechanical contact between the valve element and the valve housing; and glide bearings disposed between the rotatable element and the valve housing, the glide bearings sized and positioned to center the rotatable valve element in the valve housing” and that “the first end is substantially sealed from an other of the at least two of the at least three conduit connection openings by the wall of the rotatable valve element and by the inner surface, wherein the wall is separated from the inner surface by a gap, wherein the gap is smaller than about 0.1 mm.” Claim 13 has been amended to recite that the “glide bearings are disposed at upper and lower ends of the valve housing.” Claim 15 has been amended to recite dependency from Claim 1 and that “the glide bearings comprise polyvinylidene fluoride or polytetrafluoroethylene.” Independent Claim 16 has been amended to recite that the peripheral surface is “spaced from the inner surface to prevent direct mechanical contact between the rotatable element and the enclosure; and glide bearings disposed between the rotatable part and the enclosure, the glide bearings sized and positioned to center the rotatable part in the enclosure” and that “the rotatable part comprises one or more dividers separating the peripheral fluid passage from the second fluid passage, the one or more dividers extending to the peripheral surface and spaced from the inner surface by a gap, wherein the gap is smaller than about 0.1 mm.” Claim 18 has been amended to recite dependency from Claim 16 and that the “gap is about 0.04 mm or less.” Claim 19 has been amended to recite that the “gap is about 0.02 mm or less.” Support for these amendments can be found in, *e.g.*, pp. 6-7 and Figure 1, of the Application as originally filed.

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Applicant has also added Claim 43. Support for this claim can be found in, *e.g.*, pp. 6 of the Application as originally filed

Accordingly, Applicant respectfully submits that the amendments and new claim add no new matter and are fully supported by the application as originally filed.

### **Rejections Under 35 U.S.C. § 102**

The Examiner has rejected Claims 1-5 and 11 as being anticipated by U.S. Patent No. 3,364,947 (Van Bragt); and Claims 16-19 and 24-25 as being anticipated by U.S. Patent No. 2,996,083 (Huska).

Applicant respectfully submits that the pending claims, as amended herewith, are patentably distinct.

Applicant notes that amended independent Claim 1 recites a valve having a rotatable valve element which is “sufficiently *spaced from* the rotatable valve element to prevent direct mechanical contact between the valve element and the valve housing” and that “the first end” of the “at least one fluid passage” is “substantially sealed from an other of the at least two of the at least three conduit connection openings by the wall of the rotatable valve element and by the inner surface, wherein the wall is separated from the inner surface by a *gap*, wherein the gap is smaller than about 0.1 mm.” (emphasis added). Applicant submits that Van Bragt does not teach spacing a rotatable valve element and the valve housing to prevent direct mechanical contact between these parts, nor does Van Bragt teach maintaining a gap between the inner surface of the housing and a wall which interfaces with the inner surface to substantially seal a fluid passage from conduit connection openings. Rather, Van Bragt teaches that the “valve body 10 also has a seat 13 formed interiorly thereof, and a tapered core plug 14, has its outer face 15 shaped for *fitted, sealed* insertion into the tapered internal seat 13.” Van Bragt, Col. 2, lines 19-23 (emphasis added). Consequently, Applicant respectfully submits that Van Bragt does not teach or suggest all limitations of independent Claim 1. Applicant submits that the other art of record also does not satisfy this deficiency. As a result, Applicant submits that Van Bragt does not anticipate Claim 1 or its dependents.

Regarding independent Claim 16, Applicant notes that Claim 16, as amended, recites that the peripheral surface is “*spaced from* the inner surface to prevent direct mechanical contact

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between the rotatable element and the enclosure" that "the rotatable part comprises one or more dividers separating the peripheral fluid passage from the second fluid passage, the one or more dividers extending to the peripheral surface and spaced from the inner surface by a *gap*, wherein the gap is smaller than about 0.1 mm." (emphasis added). Applicant submits that neither Huska nor the art of record teach or suggest the spaced arrangement of the rotatable element and the enclosure or the gap between the inner surface of the enclosure and the sealing surface of a divider for separating fluid passages. Consequently, Applicant submits that Huska does not anticipate Claim 1 or its dependents.

Applicant notes that the recited gap and glide bearings advantageously facilitate use of the claimed valve in applications, such as semiconductor processing, which are particularly sensitive to contaminants. As discussed in the Application, such contaminants may be formed when mutually contacting surfaces grind together during turning of a rotatable valve part relative to the valve housing. Advantageously, maintaining a gap between the rotatable part and the housing prevents mechanical contact can prevent the grinding and particle generation that may result from such contact. Moreover, by providing this gap between the valve housing and the walls of the rotatable valve part which seal off fluid channels from one another, the fluid channels can be sealed off from one another without the use of a non-glass seal between the glass housing and glass rotatable part. It will be appreciated that some non-glass seals can be susceptible to corrosion and/or may generate particles. By using closely spaced glass pieces, a sufficiently good seal can be provided, while also minimizing particle formation and maintaining corrosion resistance. In addition, the glide bearings advantageously maintain the relative orientations of the rotatable part and housing, while allowing the rotatable part to be easily and repeatably rotated. *See, e.g.*, the Application, pp. 6-8. Thus, Applicant has advantageously provided a valve with low particle generation, good corrosion resistance and which is suitable for semiconductor processing. Applicant submits that the art of record does not recognize the problems, such as particle generation, recognized by Applicant and, as a result, does not teach or suggest the claimed valve.

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**Rejections Under 35 U.S.C. § 103**

The Examiner has rejected Claims 6-10 and 12-15 as being obvious over Van Bragt alone, or in view of various secondary references. Claims 17-23 have also been rejected as being obvious over Huska alone or in view of various secondary references. Van Bragt or Huska has been asserted for teaching all limitations of independent Claims 1 and 16, respectively, and the limitations of dependent Claims 6-10 and 12-15 and dependent Claims 17-23 have been asserted to be obvious or to be supplied by the various secondary references.

As discussed above, however, Van Bragt and Huska do not teach all limitations of independent Claims 1 and 16, respectively, as amended. Moreover, Applicant submits that the art of record does not satisfy the deficiencies of Van Bragt or Huska. As a result, Applicants respectfully submits that the rejections of dependent Claims 6-10, 12-15 and 17-23 are moot.

Accordingly, Applicant submits that the pending claims are allowable over the art of record. Applicant has not addressed the further rejections of dependent claims as being moot in view of the amendments and remarks herein. However, Applicant expressly does not acquiesce in the Examiner's findings not addressed herein. Indeed, Applicant submits that the dependent claims recite further novel and non-obvious features of particular utility.

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**CONCLUSIONS**

In view of the foregoing amendments and remarks, Applicant requests entry of the amendments and submits that the application is in condition for allowance and respectfully request the same. If some issue remains which the Examiner feels may be addressed by Examiner's amendment, the Examiner is cordially invited to call the undersigned for authorization.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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Dated: 5/19/06

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